

IN THE DRAWINGS

The attached sheet of drawings includes changes to Fig. 1. This sheet, which includes Figs. 1 and 2, replaces the original sheet including Figs. 1 and 2.

Attachment: Replacement Sheet (1)

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Figure 1 has been objected to as not being in compliance with U.S. patent practice and procedure; Claim 3 has been indicated as being objectionable under 37 C.F.R. § 1.75; and Claims 1-4 have been rejected under 35 U.S.C. § 103 as being unpatentable over Vaughan et al. in view of Lord et al. New Claims 5 and 6 have been added and thus, Claims 1-6 remain active.

Considering first then the Examiner's objection to Figure 1, it is to be noted that a letter requesting entry of substitute drawings is submitted herewith for the purpose of providing a copy of Figure 1 labeled as "Prior Art" as requested by the Examiner.

Considering next then the Examiner's objection to Claim 3 as being a substantial duplicate of Claim 4, Applicants submit that since Claim 3 depends upon Claim 1 while Claim 4 depends upon Claim 2, the scope of protection provided by Claim 3 differs from that of Claim 4 and thus merits favorable consideration in the event that Claim 1 is found to be allowable.

Considering next then the rejection of Claims 1-4 under 35 U.S.C. § 103 as being unpatentable over Vaughan et al. in view of Lord et al., it is to be noted that the Examiner has concluded that Vaughan et al. does not show the formed spiral protrusion with an inclination angle in the range of 26°-50° to a plane perpendicular to the axis of the tube but has concluded that Lord et al. shows the tube and heat exchanger formed with an inclination angle in this range with respect to a plane perpendicular to the axis of the tube. Applicants submit, however, that in Lord et al., it is more accurate to conclude that an angle corresponding to 90° minus the claimed "inclination angle to a plane perpendicular to the axis of the tube", exists. More particularly, the discussion at column 3, lines 1-3 states that the

tube has a lead angle between the fins and the axis of the tube of at least 20° and optimally in the range of 20° - 45° . Therefore, the axis of the tube is axis 42 shown in Figure 2 and thus the angle referred to therein is formed with respect to axis 42 whereas the angle claimed in the present invention is a complimentary angle to the angle shown in Lord et al. Since the angle in accordance with the present invention is an angle in the range of 26° - 50° with respect to a plane perpendicular to the axis of the tube (i.e. perpendicular to the axis 42 of the tube shown in Lord et al.). Thus, the lead angle disclosed in Lord et al. actually has a corresponding inclination angle similar to that of the present invention but only falls within the range of 45° - 70° , unlike the claimed range of 26° - 50° in the present invention. It is therefore submitted that the claimed range of the present invention would not be obvious to one of ordinary skill in the art in looking at Lord et al. since none of the experimental results disclosed in Lord et al. are directed to the same invention as presently claimed. In this regard, it is also noted that new Claim 5 claims that the inclination angle claimed in Claim 1 falls within the range of 26° - 44° and thus totally outside the inclination angle of Lord et al. Claim 6 claims indentations on the outer surface of the tubes corresponding with the spiral indentations as shown in Figure 3 and discussed on page 7, lines 7-22. Lord et al. has a smooth, rounded outer surface, by contrast, and has inner fins which are difficult to manufacture, unlike the indentations of the present invention which form protrusions.

In view of the foregoing arguments with respect to the patentability of Claims 1 and 6, it is further submitted that each of Claims 2-4 also contain allowable subject matter since they contain limitations not having any corresponding teaching or disclosure in Lord et al. or Vaughan et al.

Application No. 10/517,313
Reply to Office Action of September 9, 2005

In view of the foregoing, an early and favorable Office Action is believed to be in order and the same is hereby respectfully requested.

Respectfully submitted,

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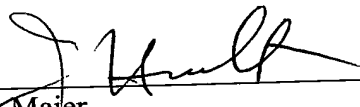
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